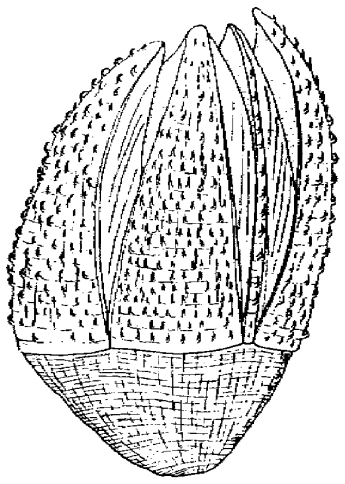

Acasta echinata, n. sp.

in the middle. Of the carinolateral compartment the aries is extremely narrow, but divided into two smooth side areas and a horizontally striated middle area which carries a longitudinal row of spines. The radii and alae are very broad and do not quite reach the base; their upper margin is very oblique and longer than the lower or side margin. There is no slit between the bases of the compartment. The orifice is very small and deeply notched. The base is cup-shaped, with the upper margin not indented; internally smooth.

The scutum is comparatively large and broad, usually wider than high and rather flat externally. The growth-ridges are prominent and usually smooth, exceptionally crossed by very delicate radiating stripes. The internal side has a prominent adductor ridge parallel with the articular ridge from which it is separated by a shallow groove; the articular ridge is well developed and slightly more than half as long as the tergal margin. There are broad, but not sharply circumscribed, pits for the adductor and depressor muscles.

The tergum has feebly elevated and widely spaced growth-ridges; externally a shallow and broad furrow runs from the rosy-colored apex to the spur. The spur has a truncated end which is about one-third of the width of the whole valve. The five corners of the valve including the spur are all angular. Internally there are usually 7 well- or ill-defined crests for the depressor muscles.

Mouth-parts not much different from those of the allied species.

Posterior longer cirri have three pairs of ventral spines on each segment. Cirrus IV has 1 or 2 hook-like teeth in each segment of the lower part of the anterior ramus and of the middle part of the posterior ramus.

Penis about twice as long as cirrus VI, having no basi-dorsal point.

Measurements of two specimens: Carinorostral diameter—7mm, 6.5mm; Height of whole shell—11 mm, 10 mm.

A New Species of Cobitidae from Japan (*Cobitis delicata*)

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The present new species, *Cobitis delicata*, is found in abundance in the upper waters.

especially in clear cold mountain streams in Central Japan. As common food material it is locally well-known and much appreciated for its delicacy. Unfortunately, however, it has often escaped the notice of ichthyologists, presumably owing to the remoteness of the habitat from towns. Some have noticed the existence of this form, but still they have been reluctant to acknowledge it as an independent species, because of its apparent resemblance to *Cobitis biwae* JORDAN and SNYDER.

Since 1924 the present author collected a large number of specimens from various places and has found by their biometric and statistic investigation that there is a distinct discontinuity between the numerical properties of the form in question and *Cobitis biwae*. The differences separating it from *Cobitis biwae* and its allied species are so clear and remarkable, that the author proposes here to describe it as a new species.

Cobitis delicata, sp. nov.

Japanese name: Adime-dozyô

D.8; A.6; P.8; V.7 (without rudimentary rays)

Head 6.7 in body length; depth 7.1; width of head 1.8 in its length; height of head 1.6; eye 6.7; interorbital space 5.0; snout 2.0; height of caudal peduncle 1.8; dorsal (longest soft ray) 1.7; anal 1.8; pectorals 1.5; ventrals 2.2; caudal 1.3; width of body 1.5 in its depth.

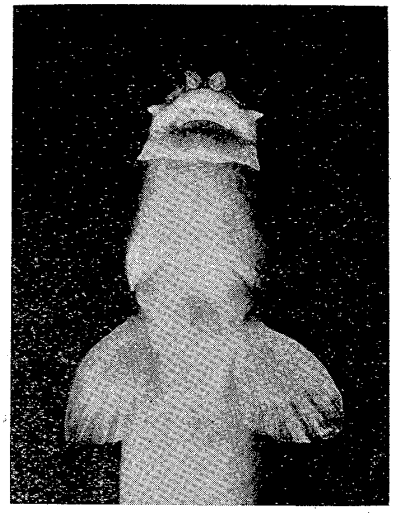

Fig. 1 *Cobitis delicata*, sp. nov., showing its semicircular mouth (Allotype, female).

Body elongate, slender and compressed. Head very short, much compressed, and with the upper profile convex; snout long, produced, and bluntly rounded; eyes very small, superior, lateral, and a little nearer the tip of the snout than the gill-opening; mouth small, inferior, and with very fleshy lips, the upper arched, the lower almost straight, and not divided so distinctly, thus the shape of the mouth is semicircular (fig. 1); barbels 3 pairs, the 1st and 2nd above snout and the 3rd at both ends of the lower lip, their length about equal with the eye diameter; nostrils nearer the eye than the tip of the snout, close together, and the anterior pair in a short tube; interorbital space narrow, a little broader than the eye, and convex.

Trunk elongate, tail comparatively short, length of tail 3.6 in length of trunk. Dorsal situated far backward; distance from the origin of dorsal to the base of caudal 2.5 in body length; ventrals a little behind dorsal; myomeres 21 between pectorals and ventrals; anal entirely behind dorsal and reaching half the space between its origin and the base of caudal; length of dorsal when depressed much less than head length; pectorals small, their length 4.8 in the space between their own origins and those of

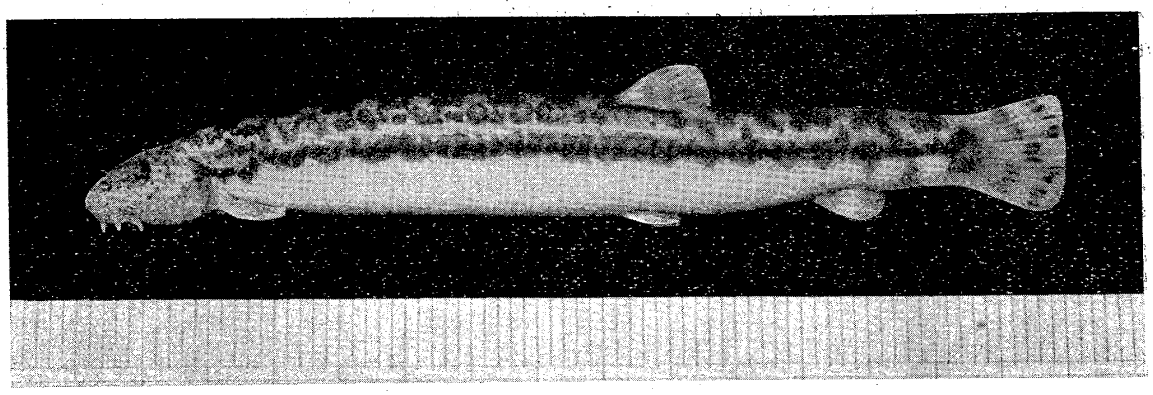

Fig. 2. *Cobitis delicata*, sp. nov. (Holotype, male)

the ventrals; ventrals very small, their length 3.2 in the space between their own origins and that of the anal; caudal a little longer than depressed dorsal, its height larger than its length, and subtruncate. Caudal peduncle much compressed, its length much longer than pectorals, and its depth 1.6 in its length. Lateral line indistinct. Scales very small on the trunk, none on the head.

Colour in formalin pale yellowish, with a marbled brown streak on lateral line, and dorsal surface is dotted with many irregular spots; head with numerous blackish spots; lower surface of the body, pectorals, ventrals and anal, pale and whitish.

Total length 75.0 mm.

This description is made from a male specimen from the River Agi, branch-stream of the River Kiso. I have many specimens from the above mentioned place and some other rivers (Kiso, Ôtaki, Tuketi, Nakanohô, Hida, Nagara, Itadori, *etc.*) in Central Japan.

Sexual differences of this species are not distinct, even in their spawning period.

Remarks. The present species resembles *Cobitis biwae* Jordan and Snyder, but is quite easily distinguished from the latter or its allied species by its larger number of myomeres (21-23, P-V), very fleshy and semicircular mouth, far backward situated dorsal and ventrals, shorter head and barbels, smaller eyes and fins, indistinct sexual dimorphism, *etc.* This species also resembles *Cobitis multifasciata* Wakiya and Mori, a Corean species, in its shorter head and fins, but differs from it in the following points: body is not so compressed, its depth 7.1 in body length (8.5 in *C. multifasciata*); distance from the origin of dorsal to the base of caudal 2.5 in body length (2.75 in *C. multifasciata*); tail is longer (in *C. multifasciata* short); anal reaching half distance from its origin to the base of caudal (two-thirds in *C. multifasciata*); dorsal a little in front of ventrals (in *C. multifasciata*

ventrals a little in front of dorsal); lower lip not divided so distinctly, and almost straight (in *C. multifasciata* divided distinctly and with two lobes); barbels 3 pairs and short (in *C. multifasciata* 4 pairs and longer); eyes very small, its diameter 6.7 in head length (4.7 in *C. multifasciata*).

Inhibition of Cell Division of Sea-urchin Egg by Hypertonic Solutions

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It has been known (*e g.*, J. LOEB 1892, J. Morph. vol. 7) that the cleavage of the fertilized egg of sea-urchin can be inhibited by keeping the egg in hypertonic solution. However, as will be seen below, the effect of hypertonicity establishes quite instantly, at least at the first cleavage of the egg of *Anthocidaris crassispina* or of *Pseudocentrotus depressus*. When the egg, which had been kept in sea water, was transferred into hypertonic sea water ($1.5 \times \frac{5}{8}$ Mol Herbst sea water) at any stage of the first cleavage, the cell division was immediately inhibited, the depth of the cleavage furrow having not changed.

When brought back in normal sea water, the egg failed to divide and assumed an hour-glass shape. In the meantime the second cleavage cut the egg in two perpendicular to the first.

When the egg was brought to the hypertonic sea water, an exosmotic shrinkage occurred and the cell membrane was slackened. The egg in hypertonic solution was slightly pressed between a cover slip and a slide, so as to give tension to the slackened membrane. The cleavage furrow became shallow and the egg finally returned to the one-cell stage. If, on the other hand, the egg, during the first division in normal sea water, was treated in the same way, the cleavage furrow did not disappear. Hence the mere slackening of the membrane does not seem to be an important factor for the inhibition.

The inhibition of cell division could be observed in pure NaCl, KCl, $CaCl_2$ and $MgCl_2$ solutions when they were isotonic or hypertonic to $1.2 \times \frac{5}{8}$ M MaCl, so that it is probable that the supression of cleavage above described is due to the hypertonicity of the medium but not to the modification of the ionic balance of the external medium. However, this does not mean that the composition of the medium plays no part in the inhibition, since it was found that pure cane sugar solution isosmotic even to